Network Working Group
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Guidelines for the Specification of the Structure of the Domain Specific Part (DSP) of the ISO Standard NSAP Address

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Status of This Memo

The following is a RFC edition of the ANSI "Guidelines for the Specification of the Structure of the Domain Specific Part (DSP) of the ISO Standard NSAP Address". It should be understood that this ANSI working document is in a draft state and subject to change.

These Guidelines are an important prerequirement to allow IP addressing within the ISO connectionless protocol (CLNS), which itself is necessary to allow the coexistance of the IP and the CLNS in the Arpanet attached gateways.

A RFC to specify a suitable IP addressing method for ISOgrams is currently worked on in Internet Task Forces and should be expected as an RFC shortly.

This RFC is for informational purposes only and it's distribution is unlimited. It does not specify a standard for the Arpa-Internet.

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TITLE: GUIDELINES FOR THE SPECIFICATION OF THE STRUCTURE OF THE DOMAIN SPECIFIC PART (DSP) OF THE ISO STANDARD NSAP ADDRESS

STATUS: X3S3.3 WORKING DRAFT

Introduction

There is a substantial amount of interest in providing guidance to private address administration authorities on preferred formats and semantics for the Domain Specific Part (DSP) of an NSAP address. In particular it is felt that use of a limited number of preferred DSP formats would allow organizations to easily use intermediate and end systems from a variety of suppliers. This technical report specifies the way in which the DSP may be constructed so as to facilitate efficient address assignment.

1. Scope and Field of Application

This Technical Report specifies a recommended syntax and interpretation for the Domain Specific Part of an NSAP address. NSAP Address Administration Authorities are urged to use this format when the equipment comprising an addressing domain is of a heterogeneous nature.

2. References

ISO 6523	Data Interchange - Structure for the identification of Organizations
ISO 7498	Information Processing Systems - Open Systems Interconnection - Basic Reference Model
ISO 8348	Information Processing Systems - Data Communications - Network Service Definition
ISO DIS 8348/DAD2	Information Processing Systems - Data Communications - Addendum to the Network Service Definition Covering Network Layer Addressing
ISO DIS 8802	Information Processing Systems - Data Communications - Local Area Networks
ECMA TR/20	Layer 4 to 1 Addressing

3. Definitions

(This section to be suppled)

4. Abbreviations

(This section to be supplied)

5. Addressing Principles

This section provides a summary of the major points contained in DIS 8348/DAD2, as they are relevant to this technical report.

Network addresses are defined to be hierarchical. An authority may either assign a complete address, or else may identify a subdomain of its own addressing domain within which addresses may be further assigned by an identified authority for the subdomain. This is done in such a way that all addresses are unique.

When an authority identifies a subdomain, this creates in effect a prefix which applies to all addresses assigned within the subdomain.

Certain methods of assigning authority are recognized within the body of DIS 8348/DAD 2. These take account of existing addressing standards such as X.121. The abstract structure of an address is shown in Figure 1.

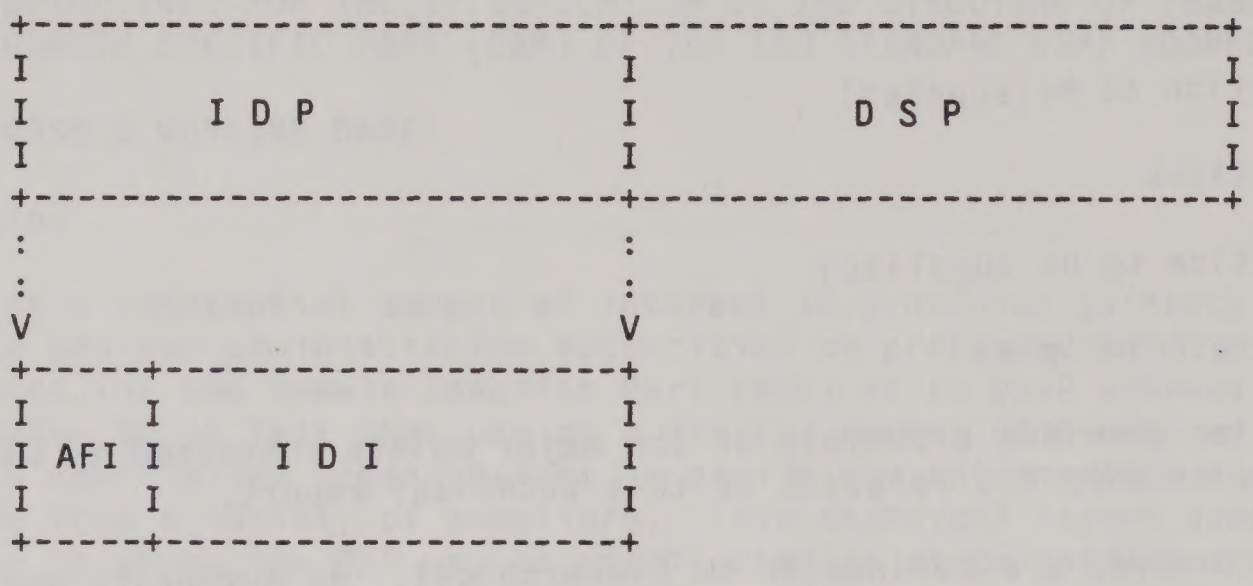

Figure 1: NSAP Address Structure

The components of this structure are as follows.

IDP: Initial Domain Part

This is the part of the address whose entire content is standardized. It consists of two parts, the AFI and the IDI.

AFI: Authority and Format Identifier

This specifies the format of the IDI, the authority responsible for allocating IDI values, and the syntax of the DSP.

IDI: Initial Domain Identifier

This identifies the subdomain from which DSP values are allocated, and the authority responsible for allocating the values.

DSP: Domain Specific Part

The contents and semantics of the DSP are not specified in DIS 8348/DAD2. Its abstract syntax is however defined by the AFI. In most cases, this means that the DSP abstract syntax can be either binary or decimal.

IDI formats specified in DIS 8348/DAD2 identify a number of authorities for IDI allocation. These are:

1. X.121 (Public data network numbering)

2. F.69 (Telex numbering)

3. E.163 (Telephone numbering)

4. E.164 (ISDN numbering)

5. ISO DCC (Geographical address assignment under ISO authority. A subset of the DCC values used in X.121 have been used to designate the national addressing authorities)

6. ISO 6523-ICD (Non-geographic address assignment under ISO authority, using the International Code Designators according to ISO 6523)

7. Local (the IDI is null and the entire address is contained in the DSP).

6. Analysis

(This section to be supplied)

7. Recommendations

7.1 X.121 DSP format guidelines

Description of Binary syntax

The length of the DSP can be determined since the total address length is known, and the IDP has fixed length for any given AFI value. If DSP is present, a DSP of 2 or less octets is an NSAP selector. A DSP between 3 and 9 octets is interpreted in the manner described below.

The length of the subnetwork identification is fixed at two octets (16 bits). The assignment of subnetwork identifications is under the control of the administering authority for the private domain, except that the value with both octets hex "FF" is reserved to indicate that the subnetwork is not explicitly identified.

The length of the subnetwork address may be up to six octets, and is determined by the DSP length minus three octets. For subnetworks using DIS 8802 MAC addressing, this field consists of the octets of the MAC address in the same order as they are defined in DIS 8802.

The NSAP selector occupies a single octet.

Description of Decimal syntax

The length of the DSP can be determined since the total address length is known, and the IDP has fixed length for any given AFI value. If DSP is present, a DSP of 8 or less decimal digits is an NSAP selector. A DSP between 8 and 23 decimal digits is interpreted in the manner described below.

The length of the subnetwork identification is fixed at five decimal digits. The assignment of subnetwork identifications is under the control of the administering authority for the private domain, except that a value of "99999" is reserved to indicate that the subnetwork is not explicitly identified.

The length of the subnetwork address may be up to fifteen decimal digits, and is determined by the DSP length minus eight decimal digits.

The NSAP selector occupies three decimal digits.

7.2 ISO DCC DSP format guidelines

Description of Binary syntax

The length of the DSP can be determined since the total address length is known, and the IDP has fixed length for any given AFI value. The length of the DSP is between 6 and 12 octets.

The first three octets identify an organization which has been designated as an addressing authority. This authority is responsible for assigning values to the remainder of the DSP.

The length of the subnetwork identification is fixed at two octets (16 bits). The assignment of subnetwork identifications is under the control of the administering authority for the private domain, except that the value with both octets hex "FF" is reserved to indicate that the subnetwork is not explicitly identified.

The length of the subnetwork address may be up to six octets, and is determined by the DSP length minus three octets. For subnetworks using DIS 8802 MAC addressing, this field consists of the octets of the MAC address in the same order as they are defined in DIS 8802.

The NSAP selector occupies a single octet.

Description of Decimal syntax

The length of the DSP can be determined since the total address length is known, and the IDP has fixed length for any given AFI value. The length of the DSP is between 14 and 29 decimal digits.

The first six digits identify an organization which as been designated as an addressing authority. This authority is responsible for assigning values to the remainder of the DSP.

The length of the subnetwork identification is fixed at five decimal digits. The assignment of subnetwork identifications is under the control of the administering authority for the private domain, except that a value of "99999" is reserved to indicate that the subnetwork is not explicitly identified.

The length of the subnetwork address may be up to fifteen decimal digits, and is determined by the DSP length minus eight decimal digits.

The NSAP selector occupies three decimal digits.

7.3 F.69 DSP format guidelines

Description of Binary syntax

The length of the DSP can be determined since the total address length is known, and the IDP has fixed length for any given AFI value. If DSP is present, a DSP of 2 or less octets is an NSAP selector. A DSP between 3 and 9 octets is interpreted in the manner described below. Interpretation of a DSP greater than 9 octets in length is not specified in this report.

The length of the subnetwork identification is fixed at two octets (16 bits). The assignment of subnetwork identifications is under the control of the administering authority for the private domain, except that the value with both octets hex "FF" is reserved to indicate that the subnetwork is not explicitly identified.

The length of the subnetwork address may be up to six octets, and is determined by the DSP length minus three octets. For subnetworks using DIS 8802 MAC addressing, this field consists of the octets of the MAC address in the same order as they are defined in DIS 8802.

The NSAP selector occupies a single octet.

Description of Decimal syntax

The length of the DSP can be determined since the total address length is known, and the IDP has fixed length for any given AFI value. If DSP is present, a DSP of 8 or less decimal digits is an NSAP selector. A DSP between 8 and 23 decimal digits is interpreted in the manner described below. Interpretation of a DSP greater than 23 decimal digits in length is not specified in this report.

The length of the subnetwork identification is fixed at five decimal digits. The assignment of subnetwork identifications is under the control of the administering authority for the private domain, except that a value of "99999" is reserved to indicate that the subnetwork is not explicitly identified.

The length of the subnetwork address may be up to fifteen decimal digits, and is determined by the DSP length minute eight decimal digits.

The NSAP selector occupies three decimal digits.

7.4 E.163 DSP format guidelines

Description of Binary syntax

The length of the DSP can be determined since the total address length is known, and the IDP has fixed length for any given AFI value. If DSP is present, a DSP of 2 or less octets is an NSAP selector. A DSP between 3 and 9 octets is interpreted in the manner described below. Interpretation of a DSP greater than 9 octets in length is not specified in this report.

The length of the subnetwork identification is fixed at two octets (16 bits). The assignment of subnetwork identifications is under the control of the administering authority for the private domain, except that the value with both octets hex "FF" is reserved to indicate that the subnetwork is not explicitly identified.

The length of the subnetwork address may be up to six octets, and is determined by the DSP length minus three octets. For subnetworks using DIS 8802 MAC addressing, this field consists of the octets of the MAC address in the same order as they are defined in DIS 8802.

The NSAP selector occupies a single octet.

Description of Decimal syntax

The length of the DSP can be determined since the total address length is known, and the IDP has fixed length for any given AFI value. If DSP is present, a DSP of 8 or less decimal digits is an NSAP selector. A DSP between 8 and 23 decimal digits is interpreted in the manner described below. Interpretation of a DSP greater than 23 decimal digits in length is not specified in this report.

The length of the subnetwork identification is fixed at five decimal digits. The assignment of subnetwork identifications is under the control of the administering authority for the private domain, except that a value of "99999" is reserved to indicate that the subnetwork is not explicitly identified.

The length of the subnetwork address may be up to fifteen decimal digits, and is determined by the DSP length minus eight decimal digits.

The NSAP selector occupies three decimal digits.

7.5 E.164 DSP format guidelines

Description of Binary syntax

The length of the DSP can be determined since the total address length is known, and the IDP has fixed length for any given AFI value. If DSP is present, a DSP of 2 or less octets is an NSAP selector. A DSP between 3 and 9 octets is interpreted in the manner described below. Interpretation of a DSP greater than 9 octets in length is not specified in this report.

The length of the subnetwork identification is fixed at two octets (16 bits). The assignment of subnetwork identifications is under the control of the administering authority for the private domain, except that the value with both octets hex "FF" is reserved to indicate that the subnetwork is not explicitly identified.

The length of the subnetwork address may be up to six octets, and is determined by the DSP length minus three octets. For subnetworks using DIS 8802 MAC addressing, this field consists of the octets of the MAC address in the same order as they are defined in DIS 8802.

The NSAP selector occupies a single octet.

Description of Decimal syntax

The length of the DSP can be determined since the total address length is known, and the IDP has fixed length for any given AFI value. If DSP is present, a DSP of 8 or less decimal digits is an NSAP selector. A DSP between 8 and 23 decimal digits is interpreted in the manner described below. Interpretation of a DSP greater than 23 decimal digits in length is not specified in this report.

The length of the subnetwork identification is fixed at five decimal digits. The assignment of subnetwork identifications is under the control of the administering authority for the private domain, except that a value of "99999" is reserved to indicate that the subnetwork is not explicitly identified.

The length of the subnetwork address may be up to fifteen decimal digits, and is determined by the DSP length minus eight decimal digits.

The NSAP selector occupies three decimal digits.

7.6 ISO 6523-ICD DSP format guidelines

Description of Binary syntax

The length of the DSP can be determined since the total address length is known, and the IDP has fixed length for any given AFI value. The length of the DSP is between 5 and 11 octets.

The first two octets identify an organization which has been designated as an addressing authority. This authority is responsible for assigning values to the remainder of the DSP.

The length of the subnetwork identification is fixed at two octets (16 bits). The assignment of subnetwork identifications is under the control of the administering authority for the private domain, except that the value with both octets hex "FF" is reserved to indicate that the subnetwork is not explicitly identified.

The length of the subnetwork address may be up to six octets, and is determined by the DSP length minus three octets. For

subnetworks using DIS 8802 MAC addressing, this field consists of the octets of the MAC address in the same order as they are defined in DIS 8802.

The NSAP selector occupies a single octet.

Description of Decimal syntax

The length of the DSP can be determined since the total address length is known, and the IDP has fixed length for any given AFI value. The length of the DSP is between 12 and 27 decimal digits.

The first four digits identify an organization which has been designated as an addressing authority. This authority is responsible for assigning values to the remainder of the DSP.

The length of the subnetwork identification is fixed at five decimal digits. The assignment of subnetwork identifications is under the control of the administering authority for the private domain, except that a value of "99999" is reserved to indicate that the subnetwork is not explicitly identified.

The length of the subnetwork address may be up to fifteen decimal digits, and is determined by the DSP length minus eight decimal digits.

The NSAP selector occupies three decimal digits.

7.7 Local DSP format guidelines

No recommendations made.